

WELCOME



HACKING LAB

MODULE - 3

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INTRO TO VIRTUALIZATION

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INTRO TO VIRTUALIZATION

INTRODUCTION

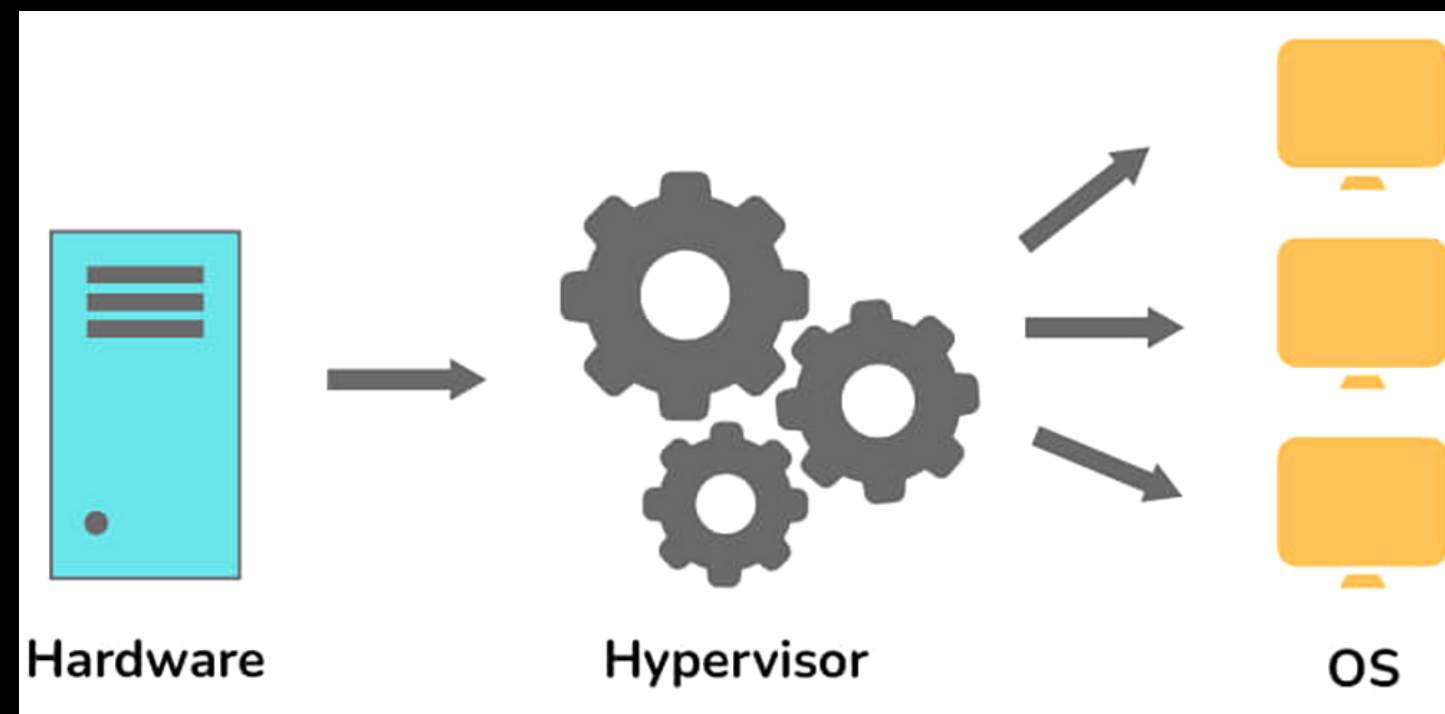
Virtualization is the creation of a virtual (rather than actual) version of something, such as an operating system (OS), a server, a storage device, or network resources. OS virtualization is the use of software to allow a piece of hardware to run multiple operating system images at the same time. Here we are going to run multiple Linux Distros at the same time.



INTRO TO VIRTUALIZATION

HYPERVERSOR

A hypervisor is a form of virtualization software used to divide and allocate resources on various pieces of hardware. The program which provides partitioning, isolation, or abstraction is called a virtualization hypervisor. The hypervisor is a hardware virtualization technique that allows multiple guest operating systems (OS) to run on a single host system at the same time. A hypervisor is sometimes also called a virtual machine manager(VMM).



INTRO TO VIRTUALIZATION

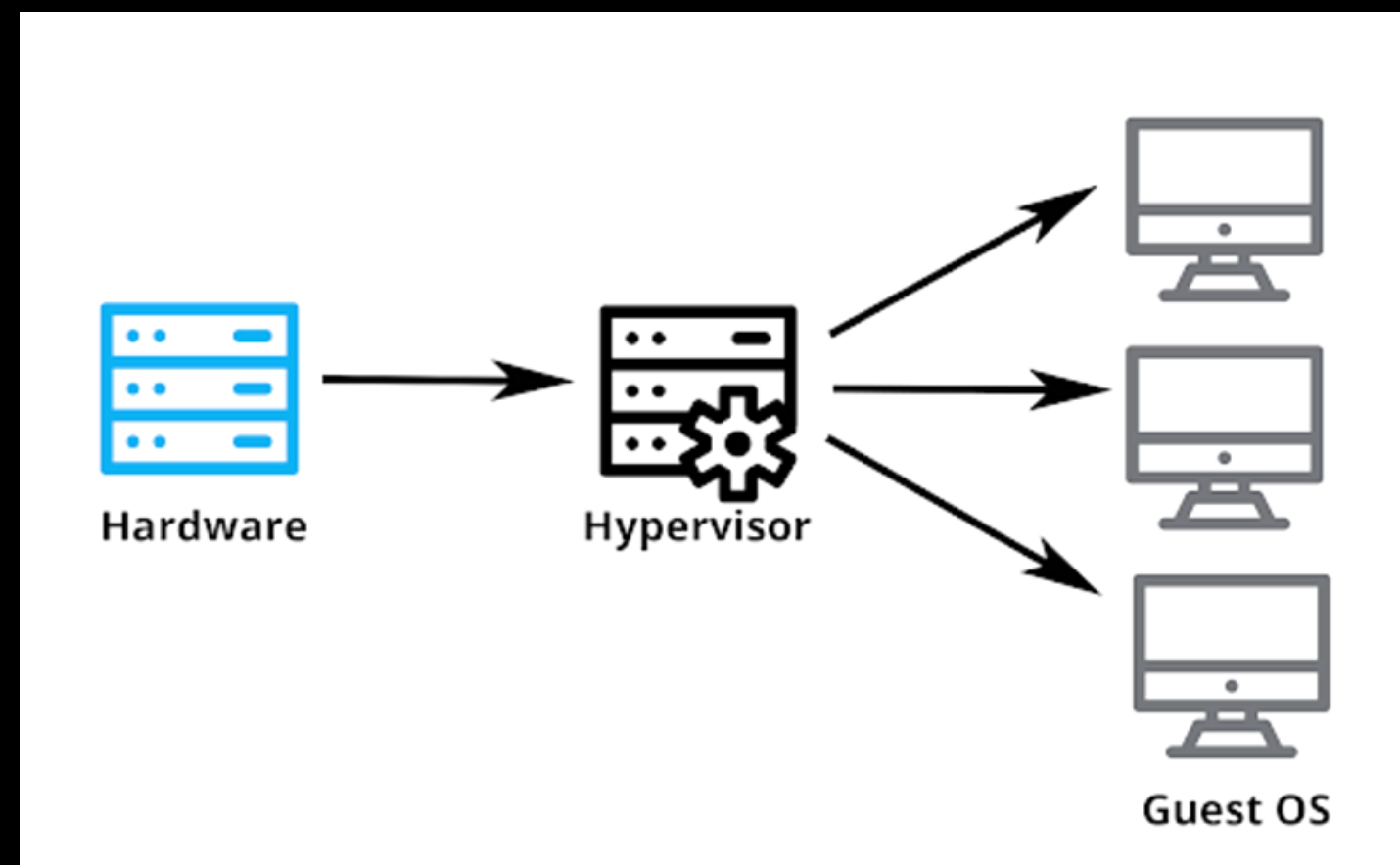
HYPERVISOR TYPES

TYPE 1	TYPE 2
A Hypervisor that runs directly on the host's hardware to control the hardware and to manage the guest OS	A Hypervisor that runs on a conventional operating system just as other computer applications
It is also called as Native or Bare Metal Hypervisor	It is also called as Host OS Hypervisor
Runs directly on the host's hardware	Runs on an OS similar to other computer programs
Eg: Microsoft Hyper V, VMware ESX	Eg: VMware workstation, VirtualBox

INTRO TO VIRTUALIZATION

TYPE 1 HYPERVISOR

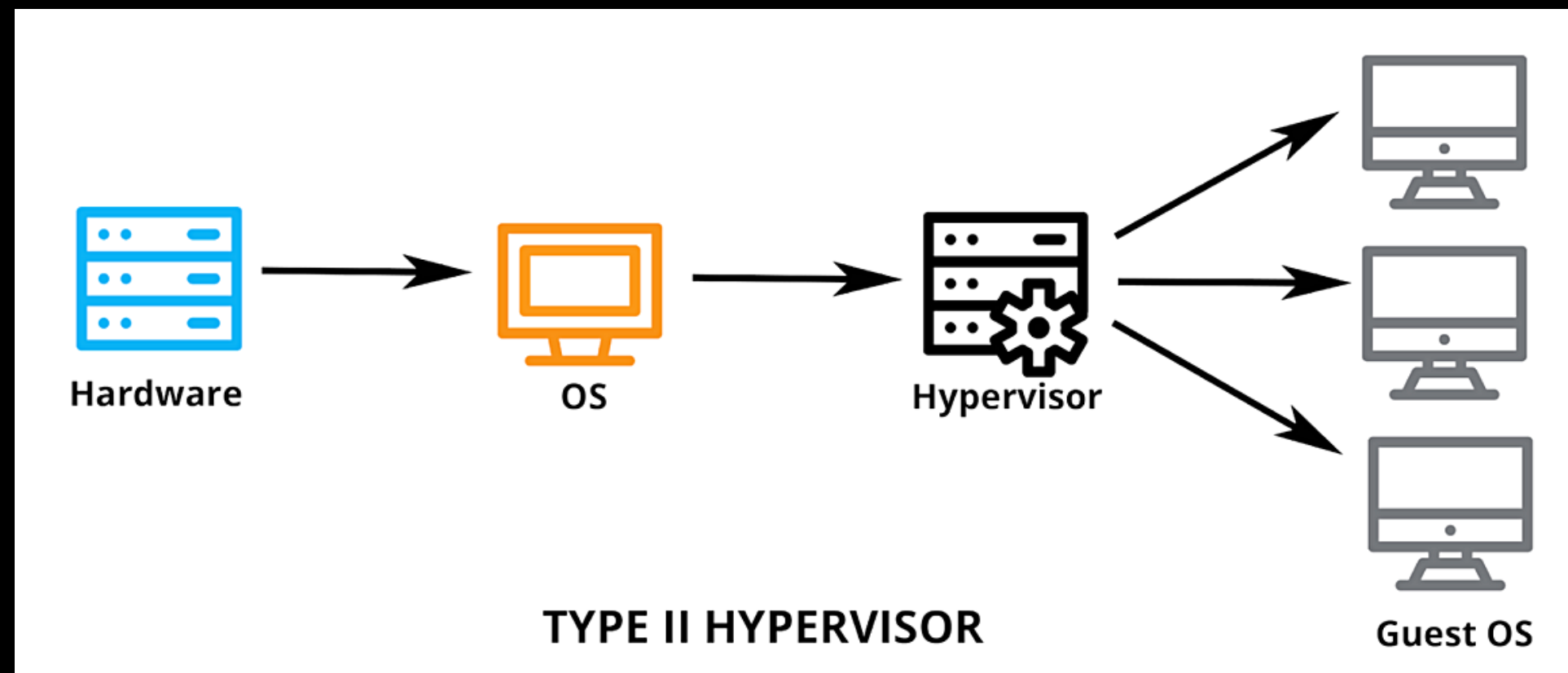
Type 1 hypervisors run on the host machine's hardware directly, without the intervention of an underlying Operating System. This means that the hypervisor has direct hardware access without contending with the Operating System and drivers.



INTRO TO VIRTUALIZATION

TYPE 2 HYPERVISOR

Type 2 hypervisors are built on top of the Operating System. The hypervisor runs as an application within the Operating System. The pre-existing Operating System manages the calls to the CPU for memory, network resources, and storage.



VIRTUAL ENVIRONMENT INSTALLATION

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VIRTUAL ENVIRONMENT

INSTALLATION

Installing VMware

- > Download VMware Workstation Pro 17
- > Install VMware Workstation Pro 17
- > Activate
- > Follow along

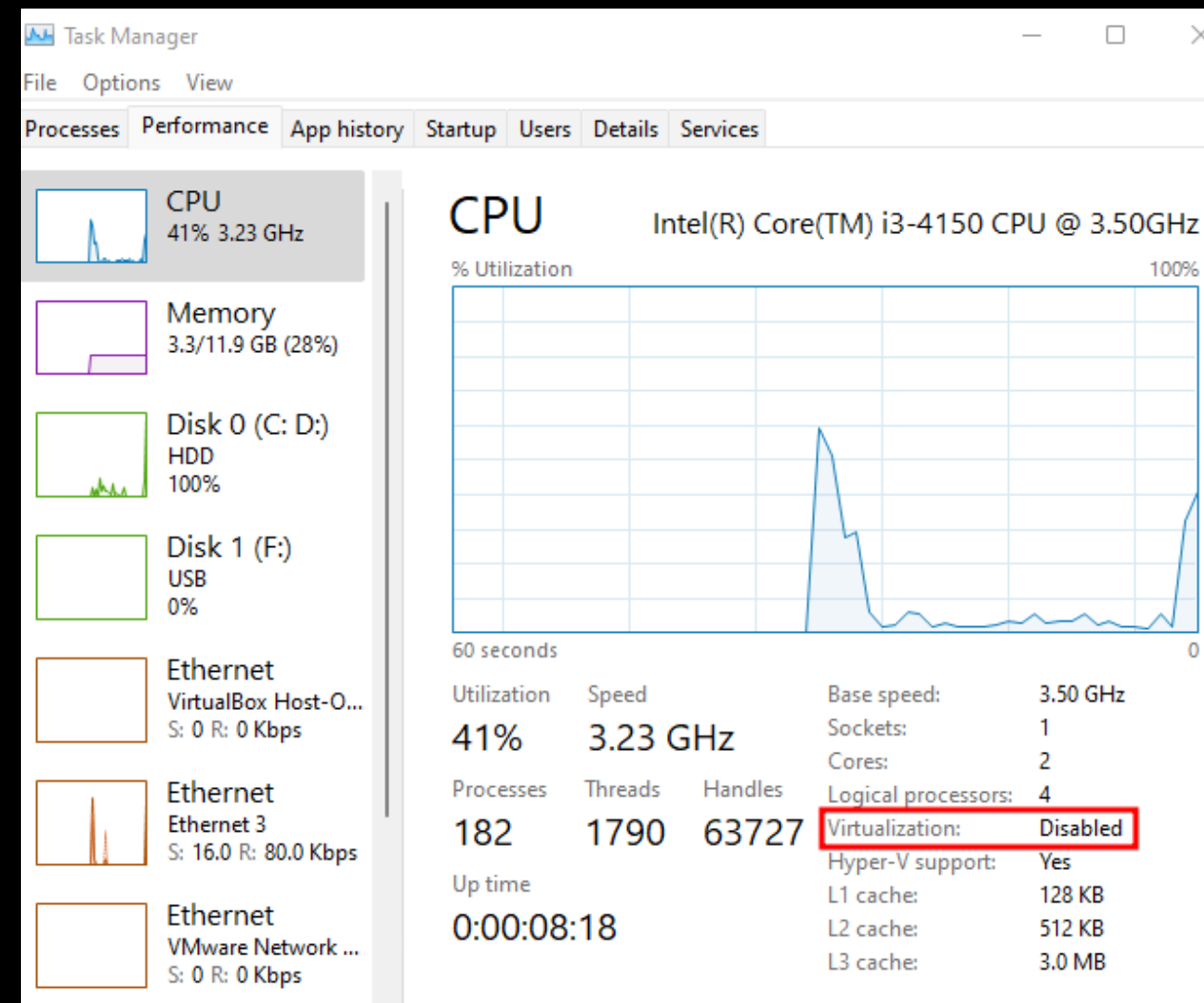


VIRTUAL ENVIRONMENT

VIRTUALIZATION ENABLED OR NOT?

Method 1

- > Enter Task Manager by pressing CTRL + SHIFT + ESC
- > Go to More details > performance



VIRTUAL ENVIRONMENT

ENABLING VIRTUALIZATION

Enabling virtualization hardware extensions in BIOS

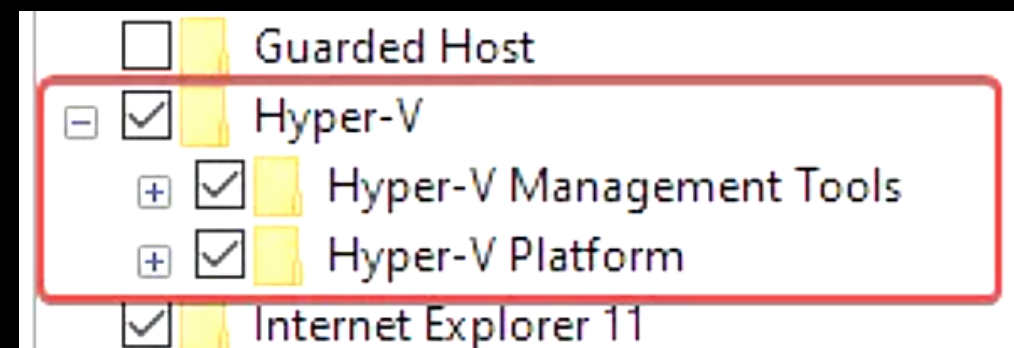
Intel > Intel Virtualization Technology

AMD > AMD-V Virtualization

(and)

Enhanced Intel SpeedStep(R) Tech	[Enabled]
Deep C-state Support	[Enabled]
Core Multi-processing	[Enabled]
Intel(R) Virtualization Technology	[Disabled]
Simulated MSI Support	[Disabled]

Press Windows logo + R > control panel > Programs > Turn Windows Feature on or Off > Hyper-V > Restart



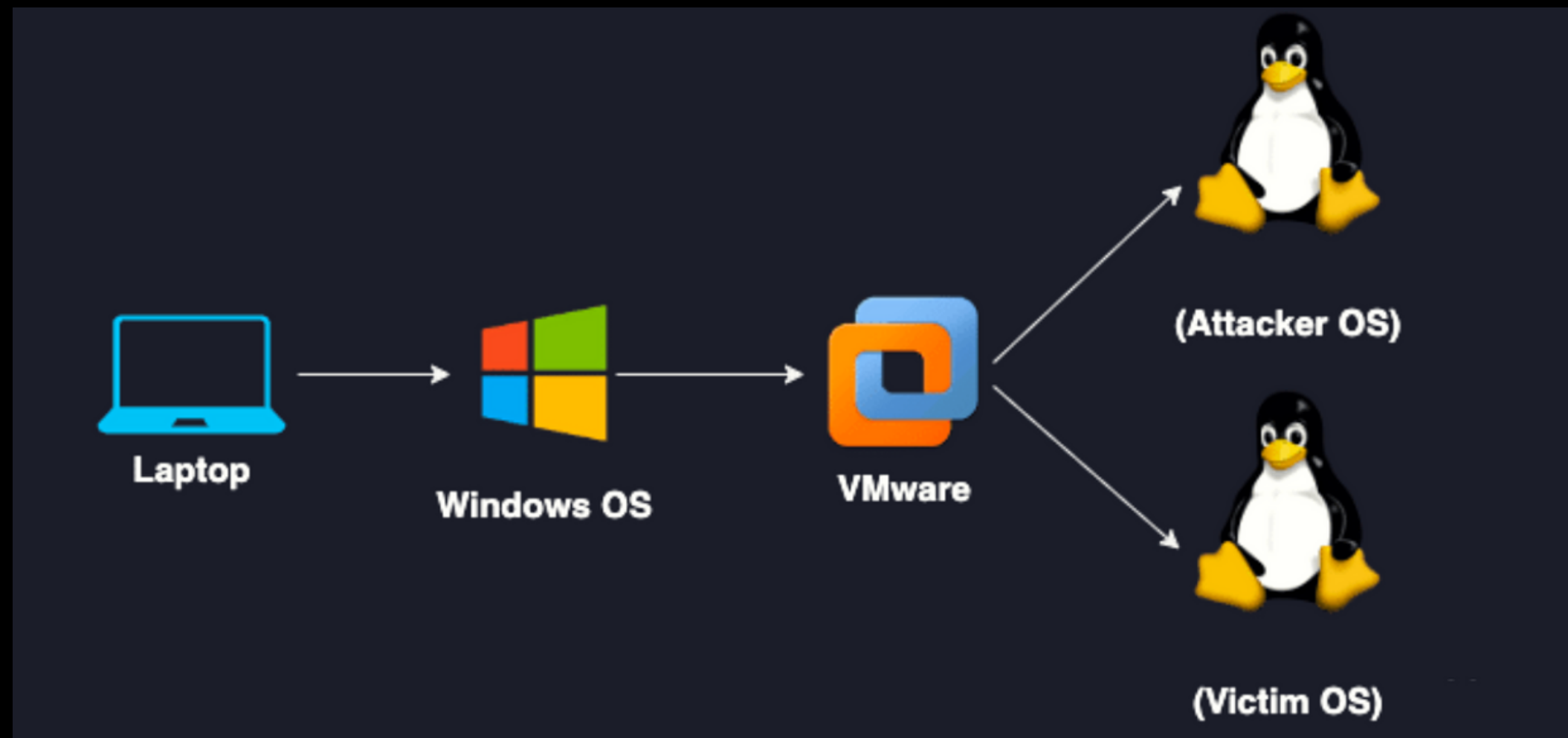


HACKING OS INSTALLATION

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HACKING OS INSTALLATION

INSTALLATION



Hypervisor: Type 2 Hypervisor

Tool: VMware

Host OS: Windows OS

Virtual OS: Kali Linux (Attacker OS)

OWASP Broken Web Apps (Victim OS)



HACKING TOOLS INSTALLATION

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HACKING TOOLS INSTALLATION

TOOLS

All of the required tools are pre-installed, just do this:

```
$ sudo apt-get update
```

```
$ sudo apt-get upgrade
```





THANK YOU

THANK YOU

ANY QUERIES

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